PHLADELPHIA NEUROLOGICAL SOCIETY.

February 28th, 1898.

The President, Dr. F. X. Dercum, in the chair.

Dr. Simon Flexner, of Johns Hopkins University, read a paper on

GLIA AND GLIOMATOSIS. (SEE P. 306).

Dr. Joseph Sailer said that Dr. Flexner's paper had brought before us some novel ideas in regard to the histology and development of gliomata. He wished to know whether Dr. Flexner, in the study of these various forms of gliosis, had not observed cells that in some respects were atypical, and which it would hardly be fair to regard as ependymal in their origin. He had recently found cells showing a slight projection on one side in the cortical region of the brain. These were large, pale, and contained a large faintly-stained nucleus. This tissue could not be hardened and stained so as to show the relation of the cells to the neuroglia fibres. Deeper down he had found peculiar cells, pyramidal in shape and quite irregular in type. Both forms were situated in hyperplastic neuroglia tissue, composed of bundles of fibres arranged irregularly with large spaces between them. He thought that these resembled the cells described as ependymal.

Dr. Spiller stated that the undifferentiated glia cells of v. Lenhossék, which are supposed to give rise to the cells of the gliomata, are purely hypothetical, and that since we know that glia cells and fibres are separate from one another, these hypothetical cells are not needed to enable us to understand the proliferation of the glia. He referred to the recent excellent papers by Rossolimo, Henneberg and E. W. Taylor on the subjects of glia and gliomatosis, and spoke of the gliosis which is so commonly seen about the central canal in spinal cords which do not seem to be abnormal in other respects. This gliosis may have some bearing on syringomyelia. He thought that if we had methods well adapted to the study of the neuroglia in animals, we should find that the fibres are as distinctly separated from the cells as they are in man. Gliomata may be composed largely of fibres, but may also contain many cells. In a glioma which he had been studying he had found numerous hypertrophied glia fibres and many cells; some of the later were round and some more or less elongated. He had found certain elements which looked as though they were in a transitional stage from cells to fibres; they were long like fibres and yet seemed to contain a nucleus.

Dr. Spiller spoke of the peculiar sharpness of outline of the gliotic tissue and symmetry of the proliferation in multiple sclerosis, and exhibited specimens illustrating these points. The microscope shows that the proliferated neuroglia is not so sharply separated from the normal tissue as it appears to be to the naked eye. He said he had observed very distinct round-cell infiltration about the vessels within the gliotic patches, which might well raise the question of the relation of disseminated myelitis to disseminated sclerosis.

Dagonet had recently spoken of the hypertrophy of the processes of ependymal cells in general paralysis as a return to embryonic conditions. This would be in accordance with Dr. Flexner's views. There seemed to be no reason why the proliferating glia cells should not assume a primitive form.

Dr. Spiller said he had observed cells in syringomyelia which were evidently very much like those described by Dr. Councilman in epidemic cerebrospinal meningitis. They were quite large round cells, containing two, three or four nuclei and a considerable amount of cytoplasm, and were situated at the outer border of the gliotic tissue. They seemed to be glia cells.

Dr. Flexner thought that the case described by Dr. Sailer might be an instance of a pathological growth of cells of the type of ependymal cells. But if the process were a reparative one rather than a true tumor formation, he would not expect to find either immature or adult ependymal cells in it. His idea was that we should think of neuroglia somewhat in the same way as we are in the habit of regarding the ordinary connective tissues. We distinguish, for example, between fibrosis and fibromatosis, and between granulation tissue and sarcoma. A diffuse growth of fibrous tissue, especially if it is reparative in nature, is not a tumor, not a fibroma. In the same way he would limit the conceptions gliosis and gliomatosis. It remains to be proven that the newly-formed glia, which has nothing to do with tumor, goes through, in the course of its evolution, the earlier stages of its ontogeny, just as growing fibrous tissues often repeat the stages of its embryological development.

The limited time at his command did not permit of a full consideration of the points raised by Dr. Spiller. He was disposed, however, to consider that they agreed in the main questions at issue.

ACROMEGALY AND HYPERTROPHIC PULMONARY OSTEO-ARTHROPATHY.

Dr. Thayer, of Johns Hopkins University, demonstrated a case of Marie's hypertrophic pulmonary osteo-arthropathy, showing photographs of three similar instances which had been under observation at the Johns Hopkins Hospital. These were accompanied by radiographs illustrating the bones of normal individuals and of two patients with hypertrophic osteo-arthropathy as well as of one instance of acromegaly. The radiographs of the hands and arms showed striking differences between the bones in acromegaly and osteo-arthropathy. In the former there was a general plumpness with an exaggeration of the normal irregularities in outline, and of the points of muscular and tendinous attachment, together with a tendency to roughness and tufting of the bone about the epiphyses. This was especially marked at the ends of the terminal phalanges. In the hands and arms of the patients with osteo-arthropathy a more or less general diaphysial enlargement of the long bones, particularly toward their distal extremities, was to be made out. The terminal phalanges were quite unaffected, and the enlargement of the other bones of the hand was entirely limited to the diaphyses. Especially striking was this enlargement in the metacarpal bones, in some of which the lower thirds of the diaphyses were nearly as large as the distal epiphyses. Autopsies in twenty instances have shown that this enlargement in osteo-arthropathy consists of an ossifying periostitis, limited almost entirely to the diaphyses of the long bones of the hands, feet, arms and legs. Radiographs were then exhibited of an acute case, which showed clearly the newly formed bone as a somewhat irregular shadow along the diaphyses of the long bones of the arm and hand, exactly in the areas of the tenderness and palpable enlargement.

The various theories as to the ultimate cause of this affection were then discussed. It is undeniable that a certain proportion of cases occur without any preceding pulmonary disorder. In a study, however, of 55 typical cases of hypertrophic pulmonary osteo-arthropathy, 43 showed a preceding pulmonary affection. Of the 12 remaining cases, 3 cases followed syphilis, 3 cases followed valvular heart disease, 2 cases followed chronic diarrhœa, 1 case followed spinal caries, 3 cases followed unknown causes.

The weight of evidence appears to be in favor of a modification of Marie's and Bamberger's theory of the toxic origin of these changes. The majority of the reported cases have followed conditions favorable to the retention of purulent secretions within the economy.

Even if we accept such a theory, however, it is at present impossible to say what the toxic substance or substances may be, how they may arise, or why they should be more frequently present in pulmonary affections than in suppuration elsewhere. The position which we occupy with regard to this affection is not dissimilar to that in which we stand with regard, for instance, to amyloid degeneration. Thus, amyloid degeneration follows commonly chronic suppuration, particularly suppuration of bone, but it is not infrequently found in syphilis where there has been relatively little suppuration, as well as in other cases of chronic cachexia due to malignant disease, or in chronic malarial cachexia, while, lastly, in a certain proportion of cases, no distinct cause can be found. In the same manner we have learned that secondary osteoarthropathies are particularly frequent in chronic suppurative processes connected with the lungs, but the disease has also occurred in several instances of syphilis, 2 instances of chronic diarrhœa and 3 instances of valvular heart disease, and, lastly, occasionally where the condition has seemed to develop spontaneously. In both instances we are led to believe that the process owes its origin to some toxic substance arising within the œconomy. What this may be we are at present unable to say.

There would appear to be little evidence in favor of the idea that the condition may be due to primary or even secondary changes in the nervous system. There can be no doubt that the name proposed by Massalongo, "secondary hypertrophic osteo-arthropathy," is much better than that originally proposed by Marie, but it is a question whether it will be possible to change a term which has come into such general use.

Dr. F. A. Packard said he had been particularly interested in the last case with the evidently recent changes shown by Dr. Thayer, who had been remarkably fortunate in getting the skiagraph at that stage. He was sorry that he had not brought with him the specimens from a case of pulmonary osteo-arthropathy which he reported in 1892. In this case the tibia distinctly shows this thickening of the subperiosteal portion of the bone most marked in, or almost restricted to; its lower half. Dr. Packard had only been able to obtain the tibia in this case, as he was away from home at the time of the necropsy, and the patient's brother had objected to the proposed examination of the rest of the skeleton, notwithstanding the fact that the patient himself had bequeathed his body to Dr. Packard.

Dr. Lewellys F. Barker, of Johns Hopkins University, showed a number of

SPECIMENS ILLUSTRATING THE MEDULLATING CEREBRUM IN HUMAN BEINGS.

The method of preparation was described. The brain of a baby shortly after birth had been hardened in Müller's fluid, imbedded in celloidin, and divided by a laboratory assistant into a series of some four hundred sagittal sections in the Anatomical Laboratory at Baltimore. These were stained by the Weigert-Pal method and mounted in balsam upon ordinary window glass, sheets of mica being used instead of glass cover slips. The glassware and mica needed for such a set of serial sections can be provided at very little expense. The sections are kept in boxes made for holding photographic negatives.

Sections chosen at some twenty levels in the hemisphere were exhibited. Only a few of the fibres are medullated at this stage of development. A portion of the upward continuation of the tegmental radiations, the pyramidal tracts, the optic tracts, and part of the optic radiations already possess myelin sheaths. The exact distribution of the sensory fibres can be easily followed, and the somæsthetic and visual sense areas of the cortex are sharply marked off from other regions. The specimens, as far as they go, are confirmatory of the anatomical discoveries of Flechsig, and illustrate the value of the embryological method for outlining tracts ending and originating in the pallium.

Dr. H. M. Thomas, of Johns Hopkins University, read a paper on

RECURRENT MULTIPLE NEURITIS.

The patient, a merchant, 28 years old, had been attacked on five different occasions by multiple neuritis. These attacks had all commenced in the month of June, and had lasted for from five to six months. The disease had recurred every year, except on one occasion, when the interval had been two years. The symptoms consisted in numbness, swelling and weakness of the feet and legs, with a slight sense of numbness in the hands, except in the last attack, when the hands were also markedly affected. Upon examination, he presented a typical picture of a widespread multiple neuritis.

No etiological factor could be determined. There was no possibility of poisoning by alcohol, nor did there seem to have been any definite exposure to lead or arsenic. The fact that the paralysis had been confined in four attacks to the legs, and that there was no lead line present, was thought to exclude the probability of lead poisoning, although the cistern from which the water at his home was obtained was connected with a lead pipe.

In a review of the literature, very few articles were found in which the recurrence of multiple neuritis had been particularly considered, the papers by Sherwood, Targowla and Sorgo practically completing the list.

Dr. Sherwood's supposition that the first attack of neuritis left the nerves with a lowered power of resistance, and so liable to recurrences, had received a certain amount of confirmation from the result of the autopsy in Sorgo's case. In his case there were marked changes in the blood vessels of the nerves and spinal cord. The patient had died during the third attack of multiple neuritis. In lead poisoning recurrent paralyses are common, when there is a renewed exposure to the lead, and they also do at times occur when there has been no re-exposure (Bernhardt); and it would seem that one attack does predispose to another in the case of this poison.

In alcoholic paralysis, on the contrary, recurrences seem to be rare, and it is remarkable how very generally the cases which are treated are seen in their first attack.

In the records of the Johns Hopkins Hospital there has been but one typical case of alcoholic paralysis which was seen in the second attack. There have, however, been two cases of the ataxic form of alcoholic neuritis which have shown recurrences, and one patient who had had an arsenical neuritis was treated in a second attack brought on by the misuse of alcohol. The recurrence of facial paralysis, although not common, does happen. Among eighty cases there were five second attacks, but in two of these the opposite side was affected, so there were but three definite recurrences.

These cases, although showing that in certain individuals multiple neuritis is likely to recur, do not prove that one attack of the disease predisposes to the second attack. The first attack must be explained as well as the others. The questions of the susceptibility, the resistance and the immunity of the tissues are involved in the answer to this problem. A careful study in this relation of a large number of cases of multiple neuritis would give at least some data upon which to build a plausible hypothesis, but at present no such study has been made, and the question must be left open.

Dr. Wharton Sinkler said that, so far as his experience went, Dr. Thomas' case was unique. From his own observation, he would judge that recurrences in lead and alcoholic neuritis are not common. He recalled only one case in which there was recurrence in lead neuritis, and that was in a house painter of intemperate habits, who had had two attacks. He remembered, also, one case of neuritis in an alcoholic patient, who had had a previous attack. He thought that there is no doubt that alcohol does predispose to attacks of multiple lead neuritis.

Dr. Spiller desired to know whether the recurrent oculomotor paralysis, of which he had seen a good example, might not be thought to have some resemblance to the case just reported.

Dr. Thomas replied that Dr. Mary Sherwood, in her thesis, refers to the cases of recurrent oculomotor paralysis, and gives the literature of the subject. As we do not know the pathology of this disease, the relation which it bears to recurrent multiple neuritis cannot be stated. There are several other forms of recurrent nervous diseases that it would have been interesting to consider had there been time.